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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 21

Application Number: 09/367,108
Filing Date: August 10, 1999
Appellant(s): HAAPANIEMI ET AL.

Bryan H. Davidson
For Appellant

SUPPLEMENTAL EXAMINER'S ANSWER

This is in response to the reply brief filed September 2, 2003.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 18 – 23 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,505,395	Qiu et al.	4-1996

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 18 – 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qiu et al (U.S. Patent No. 5,505,395).

With regard to Claims 18 – 20 and 22, Qiu et al. disclose a paperboard core (paperboard winding core; column 3, line 66); comprising a plurality of structural plies (layers; column 7, lines 48 – 51); at least one ply has a machine direction modulus of elasticity of at least 8000 megapascals, (1.58 M psi; column 10, lines 5 – 16; therefore also greater than 7500 megapascals). Qiu et al fail to disclose a core in which at least one ply has a cross machine direction of modulus elasticity of greater than 4500 megapascals and a cross machine direction modulus of elasticity of greater than 4500 megapascals and a squareness of less than 2.4.

However, Qiu et al disclose a core in which one ply has a cross machine direction of elasticity of 3660 megapascals (0.53 M psi; Table I, column 10, lines 5 – 16) and a squareness of 2.98 (E_{MD} divided by E_{CD} = 1.58 divided by 0.53 = 2.98; Table I, column 10, lines 5 – 16). Therefore, the cross machine direction modulus of elasticity and squareness would be readily

determined through routine optimization by one having ordinary skill in the art depending on the desired end use of the product as shown by Qiu et al in Table I, column 10, lines 5 – 16. It therefore would be obvious for one of ordinary skill in the art to vary the cross machine direction modulus of elasticity and squareness, since the cross machine direction modulus of elasticity and squareness would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end result as shown by Qiu et al, in the absence of unexpected results. *In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980).*

With regard to the claimed aspect of the paperboard core being 'manufactured by a press – drying process,' the scope of the claims falls within the limitations of Qiu et al as discussed above. The method of manufacturing the paperboard (product – by – process) is given little patentable weight in the product claim. Applicant would need to demonstrate, by verified showing, the unexpected advantages accruing from the method of manufacturing as claimed.

With regard to Claims 21 and 23, the paperboard core has a wall thickness of 10 mm and an inside diameter of greater than 70 mm (column 5, lines 66 – 67; column 6, lines 1 – 8) and a paperboard ply located in the middle (the structural plies are all paperboard plies, as stated above). The maximum ply width, as claimed, is therefore pi multiplied by the inside diameter of at least 70 mm (3.14 multiplied by 70, which is equal to greater than 205 mm). A middle paperboard ply width of at least 185 mm, and at least 205 mm, are therefore inherent to the core disclosed by Qiu et al., as it is identical to the core of the claimed invention (the claimed width is geometrically inherent, because of the claimed inside diameter and thickness of the cylinder).

(11) Response to Argument

The 35 U.S.C 112, second paragraph rejection of Claim 18 is withdrawn, as Appellant's arguments regarding the rejection have been considered and have been found to be persuasive.

Appellant's arguments regarding the 35 U.S.C. 103(a) of Claims 18 – 23 as being unpatentable over Qiu et al (U.S. Patent No. 5,505,395) above have not been found to be persuasive for the reasons set forth below.

Appellants argue that the rejection is improper because the structural ply of Qiu et al does not inherently possess the cross machine direction modulus of elasticity which is claimed by Appellants. However, the rejection does not state that Qiu et al inherently possesses the cross machine direction modulus of elasticity which is claimed by Appellants. To the contrary, as stated above, the rejection states that Qiu et al disclose a core in which one ply has a cross machine direction of elasticity of 3660 megapascals (0.53 M psi; Table I, column 10, lines 5 – 16) and a squareness of 2.98 (E_{MD} divided by E_{CD} = 1.58 divided by 0.53 = 2.98; Table I, column 10, lines 5 – 16). Therefore, the cross machine direction modulus of elasticity and squareness would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end use of the product as shown by Qiu et al in Table I, column 10, lines 5 – 16. It therefore would be obvious for one of ordinary skill in the art to vary the cross machine direction modulus of elasticity, and therefore squareness, since the cross machine direction modulus of elasticity would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end result as shown by Qiu et al, in the absence of unexpected results. *In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980).*

Appellants also argue that the structural plies according to Qiu et al are highly anisotropic, and therefore lead to a low axial stiffness and bending stiffness as compared to its resistance to I.D. comedown. Therefore, Appellants argue, paperboard cores according to Qiu et al are not appropriate for applications where high axial and bending stiffness are required. However, it is not taught by Qiu et al that the disclosed structural plies are highly anisotropic, or lead to a low axial stiffness and bending stiffness as compared to its resistance to I.D. comedown, and Appellant has provided no evidence to support this conclusion.

Appellants also argue that in contrast to Qiu et al, the present invention provides a spirally wound paperboard core with a structural ply having a high axial stiffness and bending stiffness of the core, under static and dynamic load, without a need to change the core structure in any other way except for the raw material, and that the technical problem underlying the present invention is not addressed at all by Qiu et al. However, the axial stiffness and bending stiffness under static and dynamic load are not claimed, and the problem of obtaining a core having high axial stiffness and bending stiffness, under static and dynamic load, are not discussed in the present specification. The terms 'axial' and 'bending' and the phrases 'static load' and 'dynamic load,' in fact, do not appear in the specification.

Furthermore, the specification, on page 3, lines 30 – 31, page 10, lines 23 – 27 and page 11, lines 1 – 3, defines the claimed invention as a solution to the problem of the inside diameter of the core decreasing because of radial compression as material is reeled onto the core. Qiu et al is directed to solving the same problem, which is referred to in Qiu et al as inside diameter (I.D.) reduction (column 3, lines 13 – 40). Both the claimed invention and Qiu et al provide, to solve the problem, a spirally wound paperboard core having a specific machine direction elastic

modulus and cross machine direction elastic modulus. The difference between the claimed invention and Qiu et al is that the claimed invention has a higher cross direction modulus of elasticity (therefore a lower squareness, which is the ratio of the machine direction modulus of elasticity to the cross machine direction modulus of elasticity) but, as stated above, it would be obvious for one of ordinary skill in the art to vary the cross machine direction modulus of elasticity through routine optimization, in the art in the absence of unexpected results.

Appellants also argue that the problem is solved by press drying the structural ply under simultaneous application of heat and perpendicular pressure to the moist paper. However, as stated above, the scope of the claims falls within the limitations of Qiu et al. The method of manufacturing the paperboard (product – by – process) is given little patentable weight in the product claim.

Appellants also argue that the relatively low squareness of the claimed invention leads to a high axial stiffness and bending stiffness of the core, and that an ordinarily skilled person in the art would not be directed to the technical features of the claimed invention by the disclosure of Qiu et al. However, as stated above, it would be obvious for one of ordinary skill in the art to vary the cross machine direction modulus of elasticity through routine optimization in the absence of unexpected results. Furthermore, it is unclear why the high axial stiffness and bending stiffness of the claimed invention constitute an unexpected result; that is, why it is unexpected that an increase in modulus of elasticity results in an increase in stiffness. Also, as stated above, the specification does not discuss the axial stiffness or bending of the core, or its performance under static and dynamic loads, nor are these aspects of the invention claimed.

Appellants also argue that because the mandrel in Qiu et al extends at least substantially into the winding core, or fully through the core, the core of Qiu et al is not subjected to bending. Therefore, Appellants argue, Qiu et al have not even considered the bending load to which the core is subjected, and one who is looking for an answer to problems originating from bending would not study Qiu et al. However, Qiu et al do not teach that the core which is disclosed is not subjected to bending. Furthermore, as stated above, it is not clear from the specification that the present invention seeks an answer to problems originating from bending, as bending is not discussed in the original specification and is not claimed.

Appellants also argue that the value of the modulus of elasticity has nothing to do with the problem Qiu et al are discussing. The problem of Qiu et al is the decrease of internal diameter, Appellants argue, and Appellants believe that to fight the compression in the longitudinal direction which leads to a decrease in internal diameter, it is only the modulus of elasticity in the machine direction that counts, not modulus of elasticity in the cross machine direction. Thus, Appellants argue, Qiu et al have no reason at all to consider the modulus of elasticity in the cross machine direction. However, Qiu et al do not teach that it is compression in the longitudinal direction which leads to a decrease in internal diameter, or that the value of the elastic modulus in the cross machine direction is irrelevant in resisting the decrease in internal diameter. To the contrary, Qiu et al disclose a paperboard core having a specific modulus of elasticity in the cross machine direction, indicating that the modulus of elasticity in the cross machine direction is not irrelevant. Furthermore, as stated above, the present specification also is concerned with the problem of the decrease in internal diameter of the core.

Appellants also argue that the problem addressed by the present invention is totally different from that in Qiu et al because the problem addressed in the present invention is caused by bending of the core between the chucks, which stretches the underside of the core in an axial direction; the only way to fight this problem, Appellants argue, is to use plies having a high modulus of elasticity in the cross machine direction. However, as stated above, resistance to bending is not discussed in the specification and is not claimed. Furthermore, it would be obvious for one of ordinary skill in the art to vary the cross machine direction modulus of elasticity taught by Qiu et al through routine optimization by one having ordinary skill in the art to obtain the cross machine direction modulus of elasticity of the claimed invention, in the absence of unexpected results.

It is noted that Appellants argue on page 2 of the Reply Brief that Qui et al teach a paperboard core having surface layers which are more dense than its internal layers, whereas the claimed invention has surface layers that are less dense than the internal layers because it is made by the Condebelt method. However, Appellant's argument raises a new issue, because density was not discussed in the Appeal Brief or the previous Examiner's Answer which responded to it.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted

Marc Patterson

Marc Patterson, PhD.

November 25, 2003.

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

11/26/03

Conferees

Harold Pyon

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